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Lastly, no account of the flora of the island would be complete without some mention being made of the famous willow grove, a group of fifty or sixty magnificent trees growing in a slight hollow above the bathing beach. These trees are probably a hundred and fifty years old, many of them have trunks eighteen or twenty feet in circumference, and none of them show any signs of decay. Taken as a whole, it is probably the finest willow grove in the New England states.

This too brief and imperfect account may serve to give some idea of the flora of Cushing's island. A botanist could wish for no better place in which to study the flora of the northern New England coast. — HAROLD B. CUSHING, *Montreal, Canada*.

NOTES ON THE BOTANY OF THE SOUTHEASTERN STATES. II.

DIERVILLA RIVULARIS Gattinger, Bot. Gaz. 13: 191. 1888.—Fruiting specimens of this interesting Diervilla were collected August 24 and again October 5, 1897, on the rocky bluffs of Lookout mountain, Tennessee. Dr. Gattinger originally found the species in a similar location at Lula falls, on the Georgia side of Lookout mountain, and some six miles from the station of the material at hand.

CRATÆGUS COLLINA Chapm. Flora S. U. S. ed. 2. second suppl. 684. 1892.—A species very distinct, but confounded with *C. punctata* Jacq. *C. collina*, as it grows at Biltmore, N. C., is a small tree 4–5^m in height, and with a trunk diameter of 1^{dm} under favorable conditions, with gray spreading branches that are freely armed with rather stout chestnut-brown to gray spines. The flowers, which appear before any others of the genus, are about 2^{cm} in diameter, white and of a disagreeable odor: calyx divisions lanceolate, glandular, the tube pubescent: shoots, foliage, and corymbs appressed pubescent, becoming glabrous with age: fruit globose, about 1^{cm} in diameter, dull red: leaves obovate to nearly oval, 3–7^{cm} long, including the petiole, 2–5^{cm} wide, or a trifle larger on vigorous shoots, acute, finely but obtusely serrate and incisely lobed, the base narrowed into a short petiole. The range, though imperfectly known, is evidently from northern Georgia, Tennessee, and North Carolina to West Virginia and Missouri. From *C. punctata* the species may be separated by the fewer

(4 or 5 pairs) and less prominent veins of the leaves, shorter petioles, and more abruptly attenuate base of the blades, earlier time of blossoming, glandular calyx lobes, and smaller fruit.

Fraxinus Biltmoreana, n. sp.—A tree 10–18^m in height, the trunk not often over 3^{dm} in diameter; branches large and spreading; branchlets stout, the growth of the season softly and densely pubescent: leaves 2 to 3^{dm} long, oblong to oval in outline; leaflets 7 to 9, ovate to oblong-lanceolate, acuminate, sometimes falcate, rounded, attenuate or inequilateral at the base, entire or obscurely denticulate, dark green and slightly lustrous above, below whitened and from sparsely to copiously pubescent, especially along the veins; petioles and petioles finely and densely pubescent to puberulent: samaras, which are borne in open pubescent to nearly glabrous panicles, large, 3.5 to 5^{cm} long, the wing about 6^{mm} wide and from two and a half to three times longer than the elliptical, unmarginated, many-nerved body. Flowers not collected.

The species evidently bears about the relation to *F. Americana* L. that *F. Pennsylvanica* Marsh. exhibits to *F. lanceolata* Borck. From *F. Americana* the Biltmore ash may be distinguished by the velvety twigs and petioles, the clove brown buds and usually stouter branches and branchlets, and by the elliptical bodies of the large samaras.

The limits of the distribution of *Fraxinus Biltmoreana*, as now shown by specimens preserved in the herbarium, extend from the mountains of North Carolina (Biltmore herbarium, no. 4049, Biltmore, N. C., type locality), to northern Georgia (Dr. J. K. Small, near Toccoa, Habersham county, Ga.). It is very probable that the species will be found to occupy a much larger area when better known.

DISPORUM MACULATUM (Buckley) Britton, Bull. Torr. Club 15: 188. 1888.—Splendid examples of this rare species were collected on the slopes of Busbee mountain, Buncombe county, North Carolina, April 22, 1896, the blossoms just opening; and again, April 27, 1897, specimens with flowers fully expanded were gathered at Hot springs, Madison county, North Carolina. In these specimens, as well as in a mere fragment preserved in the Chapman herbarium from the latter locality and gathered in 1887, the stamens are longer than the segments of the perianth, the divisions of which are liberally sprinkled with small purplish dots, and the ovary is conspicuously white-woolly. The pubescence of the stems and leaves is coarser, and not so dense

as on *D. lanuginosum* (Michx.) Nicholson, with which it not infrequently associates.

AMORPHA VIRGATA Small, Bull. Torr. Club 21: 17. 1894.—In the mountains of western North Carolina *Amorpha virgata* is frequently represented, and, so far as I am aware, is the only species of the genus in the upland section of the state. It is found in considerable patches at elevations of 700–1000^m, instances of which are located near Round knob, McDowell county, and Busbee mountain, Buncombe county, forming coarse but attractive shrubs 1–3^m high. The flowers appear at the stations given about the first of June, the fruit hanging until after the leaves have fallen.

Brauneria Tennesseensis, n. sp.—A hispid, perennial herb from a long and fusiform blackened root, 2–3^{dm} high, bearing showy heads of purplish flowers in late summer: stems 1–several from the top of the root, simple or with one or two primary branches, papillose-hispid: leaves linear to linear-lanceolate, 0.5–1.75^{dm} long including the petiole, 0.5–1^{cm} broad, attenuate at the base, the apex usually acute, 3-nerved, papillose-hispid, especially along the margins: peduncle thickened upwards, sulcate angled, like the stem or more sparingly hispid, usually bearing one or two leaf-like bracts: heads 1.5–2^{cm} high, conical, nearly as broad as high: involucre composed of lanceolate ciliate scales, thickened at the base: rays 2–3^{cm} long, purplish, hispid on the lower surface, 2-cleft at the apex, the divisions mucronate: chaff rigid, carinate, pointed, longer than the disk flowers: achenes 4-sided, wing-angled on the longest side: pappus a narrow-toothed border with four prominent points corresponding with the angles of the achene.

Collected Aug. 19, 1897, just in flower, on a dry, gravelly hill near LaVergne, Tenn., and associated with *Grindelia lanceolata* Nutt.

B. Tennesseensis is closely related to *B. pallida* (Nutt.) Britton, from which it may be known by its smaller size, very hispid stems and leaves, longer and narrower achenes (which are prominently winged on the longest angle), by the later season of flowering, and the spreading scarcely drooping rays.

SOLIDAGO ULIGINOSA Nutt. Jour. Acad. Philad. 7: 101. 1834.—Dr. Gray¹ pointed out that Nuttall probably had more than one plant in view when he described the above, and that there can be no doubt as

¹Proc. Am. Acad. 17: 193. 1882.

to the one upon which the species was founded. As qualified in the *Synoptical Flora*,² *S. uliginosa* finds its southern limits in the mountains of Pennsylvania, but specimens that match northern material passing under this name were collected September 15, 1897, in the mountains of Macon county, North Carolina, at an elevation of about 1500^m. In this situation the plants were found close to the sides of the waterways that under ordinary conditions are kept moist by the liberal and usually evenly distributed precipitations. I am indebted to Dr. Small, of Columbia University, for much help and information regarding this material.

CRATÆGUS TOMENTOSA **Chapmani**, nom. nov.—*Cratægus tomentosa microcarpa* Chapm. Flora, ed. 3. 139. 1897. Not *C. microcarpa* Lindl.—So far I have not seen the typical *C. tomentosa* in the south, and I agree with Dr. Chapman in recognizing the form with very small fruit as a well marked variety. Near Biltmore, N. C., *C. tomentosa Chapmani* forms a small tree 4–6^m high, growing usually in rich soil and attaining a trunk diameter of 1^{dm} or less. The branches are gray, and armed with slender spines: leaves 5–12^{cm} long (occasionally larger), broadly ovate, prominently veined, sharply serrate and incisely lobed, and from sparingly to densely pubescent beneath: corymbs many-flowered, leafy, bearing glandular, caducous bracts, and covered when young with fine, pale tomentum, which finally disappears: flowers small, 1.5^{cm} wide, ill-scented: calyx pubescent, the divisions lanceolate, serrate, acute: fruit sub-globose, 5–7^{mm} in diameter at maturity, bright red, long persistent.

Originally discovered on the banks of Silver creek, Floyd county, Georgia, by Dr. Chapman, whose name I have used in the new trinomial. The distribution is probably confined to the region of the southern Allegheny mountains.

CAREX OLIGOCARPA Schk. Riedg. Nachtr. 58. f. 170. 1806.—On May 26, 1896, in sandy soil bordering the Swannanoa river at Biltmore, N. C., material that matches specimens of *C. oligocarpa* from Vermont and Delaware was found in frequent patches. Dr. Chapman³ admitted the species to the range of his work on the authority of M. A. Curtis, but I cannot at this time find any further notice of its distribution in the south.

²Syn. Flora 1²: 151. 1884.

³Flora S. U. S. ed. 2. suppl. 661. 1889.

CAREX JUNCEA Willd. Enum. Pl. Hort. Berol. Suppl. 63. 1809.—Specimens from Roan mountain, Mitchell county, North Carolina, are frequently displayed in herbaria and the handbooks treating on the flora record no other stations, although Boott⁴ extends the range to the mountains of North Carolina and Georgia. At the summit of Craggy mountain (2000^m elevation), Buncombe county, North Carolina, *Carex juncea* was found in abundance July 13, 1897, growing in dense tufts from the black, fertile soil characteristic of the high elevations of the region.—C. D. BEADLE, *Biltmore, N. C.*

⁴ Ill. Gen. Carex 189. 1867.